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# DSS Interaction: A Simulation Experiment

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## ABSTRACT

Web-based systems are increasingly being used for decision support applications. However, few empirical studies examine the impact of web-based decision support systems (DSS). This experimental research looks at the various factors that impact decision-making in web-based DSS. Using a structural equation modeling (SEM) approach, the analysis reveals that information quality and system quality are the most important factors in developing an effective information system.

### Keywords

Business games, Web-based systems, Decision Support Systems.

## INTRODUCTION

Web-based technologies are having a major impact on design, development, and implementation processes for all types of DSS (Asakawa, 2003). Companies today encourage their customers to port their DSS applications, such as data mining, customer relationship management (CRM), and online analytic processing (OLAP) systems, to web-based environments using different tools. Similarly, real-time data fed from manufacturing plants are now helping floor managers make decisions regarding production adjustment to ensure that high-quality products are produced and delivered.

Web-based decision support systems are being employed by organizations as decision aids for employees as well as customers (Pillutla, 2004). A common usage of web-based DSS has been to assist customers configure product and service according to their needs (Ben-Zvi, 2009). These systems allow individual customers to design their own products by choosing from a menu of attributes, components, prices, and delivery options.

## METHODOLOGY AND HYPOTHESIS

We employ a global business game and examine several runs of the game over a period of five years. Students were asked to make (business) decisions: build production, buy material, schedule production, sell products, market production. Those decisions aim to represent the normal business operations of a company. Our experience shows that the created companies imitate real life behavior and a variety of companies emerge from our experiments. Figure 1 provides an overview of the performance the companies presented each year.

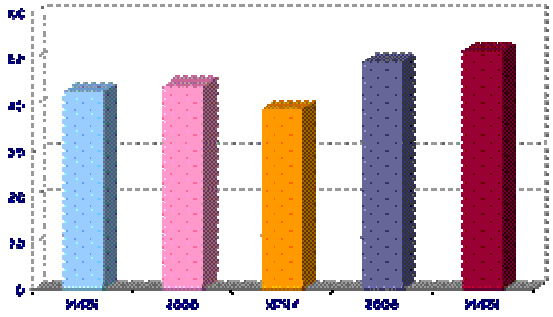

**Figure 1. Results from Different Runs: The Companies Present Different Performance.**

We hypothesize that the measure of success of information systems presents a high correlation with company performance. That is, successful information systems serve as the basis for company overall success

## PERFORMANCE ANALYSIS

The study analyzed the data using the SEM approach. Structural equation modeling allows the specification of measurement errors within a broader context of assessing measurement properties, and subscribes to a causal—indicator model—where the operational indicators are reflective of the unobserved theoretical construct. Our analysis reveals the strong correlation between information quality, system quality and performance.

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